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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,073	11/26/2003	Kei Masunishi	P24130	7834
7055	7590	07/21/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			SMITH, PHILIP ROBERT	
			ART UNIT	PAPER NUMBER
			3739	

DATE MAILED: 07/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.	10/721,073	
Examiner	MASUNISHI, KEI	
Philip R. Smith	Art Unit 3739	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 26 November 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3,5,6 and 8-22 is/are rejected.
- 7) Claim(s) 4 and 7 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  - 1. Certified copies of the priority documents have been received.
  - 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 2/27/2004.
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Objections***

[01] Claim 1 is objected to because of the following informalities: --apart-- written where --a part-- clearly intended. Appropriate correction is required.

***Claim Rejections - 35 USC § 112, Paragraph One***

[02] The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

[03] Claim 2 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. With reference to Figure 5, Applicant states that "inputted laser light in the optical fiber bundle 13 propagates in the core section 13a to be sent to the end portion 13c" [0052]. This is well understood as being consistent with the conventional behavior of an optical fiber bundle. Applicant further states that "the end plane 13d of the optical fiber bundle 13 is perpendicular to the axis Y of the optical fiber bundle 13. The optical fiber bundle 13 is a column so the circumference 13h of the end plane 13d is a circle. The thermal receiving element 14 is curved so as to fit around half circumference

of the outer surface 13t" [0053]. Figure 5 accurately represents the description of [0052]-[0053], and the physical disposition of the various elements relative to one another is clear to one skilled in the art. What is not reasonably conveyed is how light which is "propagate[d] in the core portion 13a" will be received by a thermal receiving element which is "curved so as to fit around half circumference of the outer surface 3t." It is reasonably conveyed that light will be transmitted to every point on the "[circular] end plane 13d." The "thermal receiving element 14" will not be subjected to transmitted light if positioned as specified.

***Claim Rejections - 35 U.S.C. 112, Paragraph Two***

[04] The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[05] Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

[06] Claim 2 is rejected for the reasons stated above. A "thermal receiving element" can not be placed on the "circumference of said outer surface [of an optical fiber bundle]" and expect to be "heated by said light [inputted into said optical fiber bundle]."

***Claim Rejections - 35 USC § 102***

[07] The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[08] Claims 1-3 & 5 are rejected under 35 U.S.C. 102(b) as being anticipated by

Johnson et al. (4,204,742).

[09] Johnson discloses a photothermal actuator comprising:

[09a] an optical fiber bundle ("core 11") that is inserted in a tube ("cladding 12," 10/25-29);

[09b] a light inputting apparatus that inputs light ("conducting coherent or incoherent light," 10/14-15) into said optical fiber bundle; and

[09c] a thermal receiving element ("expansion layer 13... consists of a material, e.g. a metal, having a maximally high coefficient of thermal expansion," 10/41-52) that is provided on a part of an outer surface of an end portion of said optical fiber bundle, said thermal receiving element being heated by said light so that said thermal receiving element and apart of said optical fiber bundle are stretched, whereby said optical fiber bundle and said tube are bent (14/3-12).

#### ***Additional Claim Rejections - 35 USC § 102***

[10] Claims 1, 3, 5-6 & 8-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Chastagner (5,152,748).

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[11] Chastagner discloses a guide wire, catheter, and endoscope having photothermal actuators, each photothermal actuator comprising

[11a] an optical fiber bundle ("fiber optic bundle 26," 3/55-56) in which light is inputted by a light inputting apparatus ("control source 16," 3/57-59), said optical fiber bundle being inserted into a tube ("functional tip 14," 3/67-4/3); and

[11b] a thermal receiving element ("elements 20," 4/21-32) that is provided on a part of an outer surface of said optical fiber bundle ("bundle 26 is in optical communication with control source 16 to carry light from control source 16 to each element 20," 3/57-59), said thermal receiving element being heated by said light so that said thermal receiving element and a part of said optical fiber bundle are stretched, whereby said optical fiber bundle and said tube are bent ("the heated element 20 must bow or bend upon expanding. The effect of this expansion is to bend the tip 14 away from the expanding element 20," 4/30-32).

[11c] It is clear from Fig. 5-8 that the optical fiber bundles or group of optical fiber bundles are arranged in a concentric circle in said tube at even intervals.

***Allowable Subject Matter***

[12] Claims 4 & 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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***Conclusion***

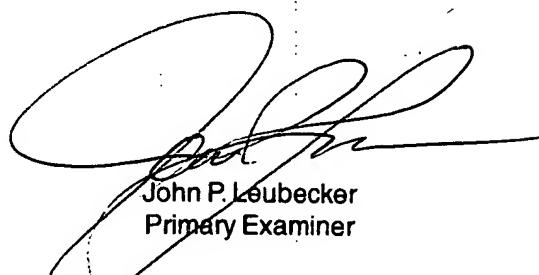
[13] The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Barr (5,279,559) discloses the use of optical energy for the bending of a catheter.

[14] Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip R Smith whose telephone number is (571) 272 6087 and whose email address is philip.smith@uspto.gov. The examiner can normally be reached between 9:00am and 5:00pm.

[15] If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda Dvorak can be reached on (571) 272 4764.

[16] Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

[Redacted]  
prs



John P. Leubecker  
Primary Examiner